nected meteorological account of the conditions near the Pole based upon a very limited number of data, but with true insight.

Mohn's best-known work is a text-book of the principles of meteorology, which passed through many editions and was translated into almost all European languages except English. By the series of papers on the movement of the atmosphere,[1] written in collaboration with C. M. Guldberg, and published in Christiania in 1876 (revised 1883), he became one of the most successful exponents of dynamical meteorology. His institute was prominent among its fellows for the excellence of its regular publications and the promptitude with which they were issued. He was a strenuous advocate of the use of the hypsometer for absolute determinations of pressure; and on the occasion of a visit to England he took the opportunity of making a comparison between barometric standards by that method, which agreed with direct comparisons within a thousandth of an inch.

Mohn's published papers are very numerous and cover all sections of meteorological science. He was the author of the article on the geography of Norway in the ninth edition of the "Encyclopædia Britannica" and a number of articles on the climate of Norway. He had a remarkably close grip of the conditions and limitations of meteorological observations and observers, and on that account was a most valued member of the International Meteorological Committee and of the various conferences and congresses at which the principles and the programmes of international co-operation were discussed. His personal qualities secured for him universal esteem as the *doyen* of international meteorologists. He was generally chosen by the Norwegian Academy as one of its representatives at international celebrations. The regret called forth by his retirement on account of his advancing years was revived and heightened by the news of his death. NAPIER SHAW.

NOTES.

WE learn with much regret of the death, on November 12, at sixty-one years of age, of Prof. Percival Lowell, director of the Lowell Observatory, Flagstaff, Arizona, where his notable work on Mars and other planets has been carried on since 1894.

HIS MAJESTY THE KING has been pleased to approve of the following awards this year by the president and council of the Royal Society:—A Royal medal to Dr. J. S. Haldane, for his services to chemical physiology, more especially in reference to the chemical changes of respiration; a Royal medal to Prof. H. M. Macdonald, for his contributions to mathematical physics. The following awards have also been made by the president and council:—Copley medal to Sir James Dewar, for his investigations in physical chemistry, and more especially his researches on the liquefaction of gases; Rumford medal to Prof. W. H. Bragg, for his researches in X-ray radiation; Davy medal to M. le Prof. H. L. le Chatelier, for his researches in chemistry; Darwin medal to Prof. Yves Delage, for his researches in zoology and botany; Sylvester medal to M. J. Gaston Darboux, for his contributions to mathematical science; Hughes medal to Prof. Elihu Thomson, for his researches in experimental electricity.

THE following is a list of those who have been recommended by the president and council of the Royal Society for election into the council at the anniversary meeting on November 30:—*President,* Sir J. J. Thomson; *Treasurer,* Sir A. B. Kempe; *Secretaries,* Prof. A. Schuster and Mr. W. B. Hardy; *Foreign Secretary,* Prof. W. A. Herdman; *Other Members of the Council,* Prof. J. G. Adami, Dr. H. T. Brown, Dr. Dugald Clerk, Prof. A. R. Cushny, Prof. A. Dendy, Prof. P. F. Frankland, Prof. J. W. Gregory, Dr. H. Head, Mr. J. H. Jeans, Major H. G. Lyons, Major P. A. McMahon, Prof. F. W. Oliver, Prof. C. S. Sherrington, Prof. A. Smithells, Hon. R. J. Strutt, and Mr. Richard Threlfall.

ELEVEN members of Sir Ernest Shackleton's Antarctic expedition arrived in London last week, including Mr. Frank Wild (second in command), Messrs. J. Wordie, R. S. Clark, R. James, L. Hussey, and G. Marston (of the scientific staff), Major Orde Lees (motor engineer), and Messrs. A. Macklin and J. McIlroy (surgeons). The remaining members of the Weddell Sea party will arrive shortly, with the exception of Sir Ernest Shackleton, who is on his way to New Zealand to join the *Aurora.* In an interview in the *Daily Chronicle* Mr. Wild gives some account of the experiences. The *Endurance* was nipped in the ice four months before she eventually sank, and the explorers fortunately had ample time even at the end to remove stores and equipment to the ice. With these stores, and meat provided by shooting the dogs, as well as a few seals and penguins, they managed to survive. On Elephant Island, with its scanty resources, the food problem caused grave anxiety, for the stores were running low. We have not heard any details as yet about the scientific results, but they must be considerable, at least in oceanography and meteorology. A number of kinematograph films have been brought back, including views of the crushing of the *Endurance,* the abandoning of the ship and her foundering, as well as of the explorers' life on the drifting ice-floe and on Elephant Island.

THE Women's National Land Service Corps has just issued an interim report on the work of the last eight months. This organisation is recognised by the Board of Agriculture and has received a Government grant. It has endeavoured to create a favourable opinion as to the value of women's work in agriculture by supplying a body of workers capable of making a good impression, and so break down the prejudice of those farmers who are opposed to the employment of women. From the start the selection committee has spared no pains to prevent unsuitable women from going on the land, with the result that, considering the difficulties involved, the number of failures has been extraordinarily small. The corps has several training centres in different parts of the country, where women are given short courses of instruction in farm work. Besides supplying labour units to farmers, another, and perhaps more important, branch of the work has been directed against the view, widely held in the rural districts, that work on the land is derogatory. The interesting letters appended to the report give a very clear idea of this difficulty. The corps is urgently in need of more recruits to meet the demand from farmers which cannot now be met, and is certain to become greater after January 1, 1917, when exemptions of agricultural labourers are to be reconsidered. The secretary of the corps is Miss A. C. Franklin, and the headquarters are at 50 Upper Baker Street, London, N.W.

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[1] An English translation is given in Abbé's "Mechanics of the Earth's Atmosphere." Third Collection. (Smithsonian Institution, 1910.)

AN inter-departmental committee, presided over by Mr. Harcourt, has now arranged the respective spheres of work and co-operation, in dealing with commercial inquiries, of the new Commercial Intelligence Department of the Board of Trade and the Imperial Institute, which in recent years has become a central department for information and investigation respecting the sources and uses of the raw materials of the Empire. In future the Technical Information Bureau of the Imperial Institute will answer all commercial inquiries respecting the sources of supply, technical uses, and value of raw materials within the Empire, and will be responsible for supplying all information required in order to bring the producer overseas in touch with the manufacturer at home. Inquiries as to immediate supplies may be addressed either to the Board or to the Institute, as may be most convenient, but the Commercial Intelligence Department of the Board of Trade will as a rule be prepared to deal with inquiries for immediate supplies of well-known raw materials which can be obtained at once through ordinary trade channels. In answering those inquiries in which special statistical or trade information is required, in addition to technical information, the Board and the Institute have arranged to co-operate. Investigations of the possible industrial uses of raw materials will, as heretofore, be dealt with by the Imperial Institute. The arrangement proposed by the committee has now been accepted by the Secretary of State for the Colonies, the President of the Board of Trade, and the Executive Council of the Imperial Institute.

DR. HENRY HEAD, F.R.S., has been appointed a member of the committee to inquire into the position occupied by natural science in the educational system of Great Britain.

WE regret to announce the death on November 13 of Mr. Charles Smith, master of Sidney Sussex College, Cambridge, and author of many well-known works on mathematics, at seventy-two years of age.

THE Stockholm correspondent of the *Morning Post* states that the Nobel prize for physiology for 1916 will probably be awarded to Prof. H. J. Hamburger, of Groningen University. It is stated that the Swedish Academy of Sciences has decided not to award this year the Nobel prizes for physics and chemistry.

MR. R. N. DOWLING, organiser of agricultural education to the Lindsey County Council, Lincs., has been appointed director of the first Government farm colony for ex-service men in the East Riding of Yorkshire. An account of the Government scheme for the establishment of this land-settlement colony was given in NATURE of October 26, p. 152.

AT a recent meeting of the Optical Society the election to honorary membership took place of Sir Frank Dyson, Astronomer Royal, Prof. R. A. Sampson, Astronomer Royal for Scotland and professor of astronomy in the University of Edinburgh, and Prof. H. C. Plummer, Royal Astronomer of Ireland and Andrews professor in the University of Dublin.

THE Maria Mitchell Memorial Astronomical Fellowship at Harvard Observatory, value 100*l*., is offered to a woman for the year beginning September 15, 1917. The fellowship at all times must be used for purposes of serious study, and the fellow should be as free as possible from other responsibilities. Application must be in the hands of the secretary of the committee, Mrs. Charles S. Hinchman, 3635 Chestnut Street, Philadelphia, Pennsylvania, on or before April 1, 1917.

THE next award of the quinquennial Cartwright prize of the Royal College of Surgeons of England will be for the five years ending December 31, 1920. The prize consists of a medal in bronze and an honorarium of 85*l*. The subject for the competing essays is "The Treatment of Injuries of the Jaws, and the Restoration by Mechanical Means of Parts of the Jaws Lost as the Result of Injury or Removed on Account of Disease." Further particulars of the competition are obtainable from the secretary of the college.

IT had been proposed to establish a whaling station with its accompanying works near Fiskebäckskil, on the Gullmar fjord, north of Gothemburg, but the Swedish Government has now placed its ban on any such handling within Swedish territory of right whale, sperm whale, or beaked whale. This decision will be welcomed by the workers at the neighbouring biological station of Kristineberg, as well as by all naturalists who wish for some limit to be set to the chase of these interesting and threatened animals.

THE introductory lecture of a course of twelve lectures (the Swiney Lectures on Geology) on "The Mineral Resources of Europe" was delivered by Dr. J. S. Flett, at the Royal Society of Arts, on Tuesday, November 14. The remaining lectures will be given on Tuesdays, Thursdays, and Fridays, at 5 p.m., until Friday, December 8. The subjects to be dealt with are coal resources, petroleum, iron ores, copper, tin, manganese, lead, the precious metals, and the salt deposits of Germany, France, and Britain. The lectures will be illustrated by lantern-slides, and admission to them is free.

AT the anniversary meeting of the Mineralogical Society held on November 7 the following were elected officers and members of council:—*President*, Mr. W. Barlow; *Vice-Presidents*, Prof. H. L. Bowman and Mr. A. Hutchinson; *Treasurer*, Sir William P. Beale, Bart.; *General Secretary*, Dr. G. T. Prior; *Foreign Secretary*, Prof. W. W. Watts; *Editor of the Journal*, Mr. L. J. Spencer; *Ordinary Members of Council*, Capt. W. Campbell Smith, Dr. J. W. Evans, Dr. F. H. Hatch, Mr. J. A. Howe, Mr. T. V. Barker, Mr. G. Barrow, Prof. C. G. Cullis, Mr. F. P. Mennell, Mr. H. Collingridge, Mr. T. Crook, Dr. G. F. Herbert Smith, and Dr. H. H. Thomas.

CAPT. R. W. NICHOLS, who was killed in action on October 23, at thirty-one years of age, entered the service of Messrs. Arthur Guinness, Son, and Co., Ltd., at the age of fifteen. On the formation of the Guinness Research Laboratory in 1901 Capt. Nichols was employed as assistant to Mr. F. Escombe. In all work in connection with this he showed conspicuous ability. He left the service of Messrs. Guinness about five years ago, and, after a short service with an English firm, emigrated to Canada, and soon obtained a position at the Agricultural Station at Ottawa, where he was employed up to the time of joining the Army. Capt. Nichols was an extremely keen worker, and his cheerful temperament gained him a great number of friends. His loss will be deeply regretted by all his associates.

IN the Scottish lighthouse service there have been for many years a number of lightkeepers interested in natural history, especially in bird-life, who have contributed valuable records on the migratory movements of birds to the annual reports on Scottish ornithology. One of these has just passed away in the person of Mr. J. M. Campbell, who was, besides, keenly interested in the study of marine life, for which his nine years' residence on the Bell Rock afforded him ample opportunities. In 1904 he published a well-written volume on the "Natural History of the Bell Rock," in which he described, month by month, the seasonal fluctuations of the invertebrate life exposed at low tides on the rocks around the lighthouse, and of the birds visiting it and the lantern. On his transference to the Bass Rock he turned his attention to the hosts of sea-fowl resorting to that famous nesting haunt, more particularly to the gannet, on which he contributed many valuable notes to Mr. Gurney's monograph of that bird. Mr. Campbell also made some useful contributions to Mr. Evans's papers on the moths occurring at the lanterns of the northern lighthouses, which recently appeared in the *Scottish Naturalist*.

BY the death on November 5, after a long illness, of Prof. H. M. Waynforth—until recently professor of engineering in King's College, London—engineering teaching has suffered a great loss. Born in 1867, Prof. Waynforth was educated at the Haberdashers' School and at the Finsbury Technical College, his apprenticeship being served at Messrs. Bennett and Sons, engineers. He was assistant to Prof. Perry at Finsbury for some time, after which he went to Mason College, Birmingham, as demonstrator in engineering, leaving Mason College to join the engineering staff of King's College, London, in 1896. He was appointed assistant-professor of engineering in 1902, and University professor in 1912. His work for engineering teaching in the University of London was most valuable and important. The present syllabus for the B.Sc. degree in engineering, especially in theory of structures, strength of materials, and theory of machines, owes much to his energy and professional ability. An eminently practical man, he laboured assiduously to keep the syllabus as practical as possible, and at the same time to maintain a high standard of academic attainment. He did a good deal of original work on the testing of materials, but it will be as a great teacher that he will be best remembered. His lectures at King's College were marked by great freshness and vigour, and his breadth of mind and cordial sympathy endeared him to all his students. His loss will be felt by his old colleagues at King's College and in the University of London, but he will be especially mourned by the large number of King's College men who now, on many battle-fronts and in the Grand Fleet, are applying the principles he taught so well to the engineering problems of the war.

THE Kelvin lecture delivered before the Institution of Electrical Engineers on November 9 by Dr. Alexander Russell dealt with some aspects of Lord Kelvin's life and work. After giving a short account of his early life, Dr. Russell showed how, in many fields of fundamental importance to the electrical engineer, Lord Kelvin's work had provided the basis on which his successors had built. His solution of the problem of the transmission of signals along a submarine cable given in 1851 only requires a slight extension to make it suitable for the electric transmission of power in a three-phase system, while his proof that the temperature of a heated body may be less when it is surrounded by a bad conducting covering than when it is left bare has been reproduced by others as a new discovery. Many of the theoretical extensions of Lord Kelvin's work we owe to Dr. Russell himself, as, for example, the calculation of the force between electrified spheres. As, in addition, he is a former pupil of Kelvin, it would have been difficult to find one more fitted than Dr. Russell to treat of Lord Kelvin's work with understanding and with sympathy. As a teacher of the natural philosophy class at Glasgow University, with pupils whose principal ambition was to pass the M.A. examinations, Lord Kelvin was to a great extent wasted. If he could have spent his time in inspiring with his own spirit and enthusiasm for research a selected body of students more capable of appreciating his genius, how much richer science would have been. May we hope that by the time another Kelvin appears we shall have learnt how to utilise his powers to greater advantage than in preparing undergraduates for their degree examinations.

At the annual meeting of the Society for Extending the Rothamsted Experiments, held on November 6, Mr. J. F. Mason, M.P., being in the chair, an address was given by the Rt. Hon. the Earl of Crawford and Balcarres, President of the Board of Agriculture, who sketched briefly the history of the Rothamsted Experiment Station and the part it has played in the development of British agriculture. During the war the work of the station has necessarily been modified. Two-thirds of the total staff are either fighting or engaged on direct war work, the special experience gained at Rothamsted having proved unexpectedly useful in certain highly important directions. Some of the staff hold commissions in the Sanitary Corps; some are engaged under the Ministry of Munitions in the large-scale manufacture of a certain indispensable constituent of high explosives; while some are fighting in infantry regiments. Those left at the laboratory are kept occupied with special inquiry work sent in by the Board of Agriculture and other departments. Nevertheless, the ordinary work is still being continued. Women workers have come in to take the place of some of the men who have gone, and they are keeping nearly all the lines of experiment alive, so that not only is nothing being lost, but steady progress in the experiments is being made. The whole of the organisation is thus being kept in working order, and in readiness for full development to deal with the problems of the new situation which will undoubtedly arise after the war. The director of the station, Dr. E. J. Russell, was able to announce some handsome gifts during the year, including 1000*l.* from the widow and daughter of the late treasurer, Dr. Hugo Müller; 300*l.* from the Carnegie Trustees for the purchase of books for the library; 232*l.* from the Rt. Hon. Sir John T. Brunner, P.C., for furnishing the library; as well as other gifts for the laboratories and the library. The sum of 500*l.*, needed to clear off the Building and Equipment Fund, was raised at the meeting on November 6.

IN the third issue of *Folk-lore* for the current year Mr. S. A. H. Burne discusses some examples of survivals of folk memory in Staffordshire. Thus he points out that local tradition describes with some correctness Cromwell's action in regard to the rights of freeholders in Needwood Forest, and a local rhyme, still current, expresses the popular joy at the Restoration, the despotism of the Executive under Cromwell being much disliked. The idea, still prevalent, that the corpse of a person dying through violence should not be touched before the arrival of the police is traced back to medieval criminal procedure, which imposed a certain presumption of guilt upon the first finder of a dead body. Hence it was manifestly wise to let someone else discover it, and the current idea is a survival from coroners' law in the Middle Ages.

THE tests used for determining colour vision and tactile discrimination by the Cambridge Anthropological Expedition to the Torres Straits fifteen years ago are criticised in great detail by Prof. E. B. Titchener in the Proceedings of the American Philosophical Society (vol. lv., No. 3). The findings of this expedition have been so often quoted, and so many generalisations from these tests made about the native mind, that the writer of the paper thinks that more attention should be paid to the technique and suitability of the tests. He criticises Dr. McDougall's use of the æsthesiometer from the point of view of method, and the apparatus chosen by Dr. Rivers to test colour vision. If the tests themselves are faulty, then the generalisations based on them are invalid, and the writer thinks that the Murray Islanders ought not to be judged by these experiments. Anthropologists and ethnologists will find the whole article of interest.

ALTHOUGH the lack of a definition of disease does not prevent the practice of medicine, the amount of litigation which has recently arisen about medical matters, such litigation turning upon the meaning of terms like injury, accident, disease, etc., necessitates the accurate definition of such terms. It is the object of an article by Dr. Charles Mercier in the October number of *Science Progress* to define "a disease." Every part of the human body has a duty towards the whole, which Dr. Mercier calls its extrinsic function, and a duty towards itself (which consists in making good the waste consequent on the performance of its extrinsic function), its intrinsic function. When the intrinsic or extrinsic function of a part of the body is disordered or defective, there is usually some sign of such disorder or defect. The sign may be perceptible to the patient alone, to bystanders alone, to a skilled physician alone, or to all three. Such a sign is termed a symptom. Disease is a term covering not only all disorders of function and all symptoms, but also all results of disorder of function. Indigestion, a disorder purely of extrinsic function; atrophy, a disorder purely of intrinsic function; albuminuria, a result of disorder of extrinsic function; cancerous breast, a result of disorder of intrinsic function; and pain, are all disease. But none of these is "a disease." Diseases may become symptoms, but the only way they can do so is in the way we contemplate them. Certain things sometimes called diseases are not diseases. Structural disease is not "a disease"; thus a cancerous liver may be removed from a dead body and preserved in spirit, and it would obviously be absurd to call the preserved organ a disease. It is a diseased organ, but not a disease. A valve of the heart of a patient suffering from rheumatic fever may undergo structural damage, which, with its consequences and symptoms, constitutes "heart disease." But the latter is only part of "the disease" from which the patient suffers, which is acute rheumatism. When, however, the rheumatism disappears, leaving the heart damaged, this structural damage, together with its symptoms and consequences, becomes "the disease."

DR. A. RASMUSSEN, in the *American Naturalist* for October, gives a very valuable summary of all the theories which have been advanced in explanation of the hibernation of animals since Gesner wrote in 1551. Conrad Gesner was apparently the first to conduct experimental work by way of an attempt to solve the mystery which enshrouds this peculiar state of torpor, though speculation on the subject goes back to the time of Aristotle. Although the author refers occasionally to the hibernation of "man and other animals," yet in his essay he confines his remarks entirely to mammals. He insists that until certain causal relations are definitely established between the factors concerned many of these theories are of little value except as a stimulus to further research. If the hibernation of mammals is only an extreme form of ordinary diurnal sleep, as some maintain, it is especially to be hoped that this subject will continue to be investigated by more modern and adequate means, for no entirely satisfactory theory has yet been advanced to explain the physiological cause of ordinary sleep.

IN a recent report to the governors of the Huddersfield Technical College, Dr. A. E. Everest, the newly appointed head of the Department of Coal-Tar Colour Chemistry, refers to the objects which the governing body had in view in grafting this extension on to the courses already existing in the college. The aim is to establish in Huddersfield "a laboratory for research and post-graduate work that shall be the national centre to which all firms connected with the coal-tar colour industry shall naturally come for assistance, and around which all matters connected with coal-tar colour chemistry shall centre." It is recognised that the first essential to the success of this scheme is to keep the new laboratory open to the participation of all industrialists interested in this branch of applied chemistry, and to this end the governors have selected as the head of the department one not in any way tied by appointment to any particular firm. British Dyes, Limited, the directors of which have helped the new venture with a substantial endowment, are now in possession of the Tunbridge works of the old firm of Messrs. Read Halliday and Sons, Limited. Moreover, this company has made great progress with its new factory in the auspiciously named suburb of Dalton. At Deighton, within a stone's-throw of the Dalton site, are the rapidly extending works of Messrs. L. B. Holliday and Co., at present engaged on an improved process for an urgent necessity. At Milnsbridge, also in the same valley, is the old-established firm of Messrs. Leitch and Co., who have accomplished work of national importance. These and other firms outside Huddersfield have interested themselves in the new department, and have rendered valuable assistance. At present teaching and research work are in progress, temporary accommodation having been found in the chemical department. These facilities are, however, quite inadequate, and a suitable site has been acquired for the colour department, on which well-equipped laboratories, offices, and reference library will be built so soon as the necessary funds are available.

THE "Galvanoset," a patented piece of apparatus utilising the ordinary electricity supply for medical purposes, has been submitted to us for examination by the Medical Supply Association, Gray's Inn Road, W.C. It may be described as a potential divider using tap-water as the medium conveying the main current. The water is contained in a cylindrical glass vessel about 9 in. in diameter and 4 in. deep. Into the water dip two vertical rods of electric light carbon placed as far apart as possible, and supported from the flat ebonite cover of the glass vessel. From these electrodes current is taken to the patient. Just below the cover is a horizontal arm which rotates about a vertical central axle and carries at its ends two vertical carbon electrodes which are connected to the mains. When the movable electrodes have their joining line perpendicular to the line joining the fixed electrodes, there is no potential difference between them, but when their joining line coincides with that between the fixed electrodes there is the maximum potential difference. The pairs of electrodes never touch, so there is no danger of passing a large current through the patient. By the aid of a graduated circle on the cover and an outer index attached to the arm carrying the movable electrodes, an approximate notion of the voltage in the derived circuit is obtained, but for greater precision a milliammeter is provided on the cover. A trial shows that when a pressure of 100 volts is applied between the fixed electrodes a maximum current of about 200 milliamperes flows in the derived circuit. Quite apart from the medical purposes for which it is designed, an apparatus such as this would have manifold applications in all laboratories where small variable currents are required.